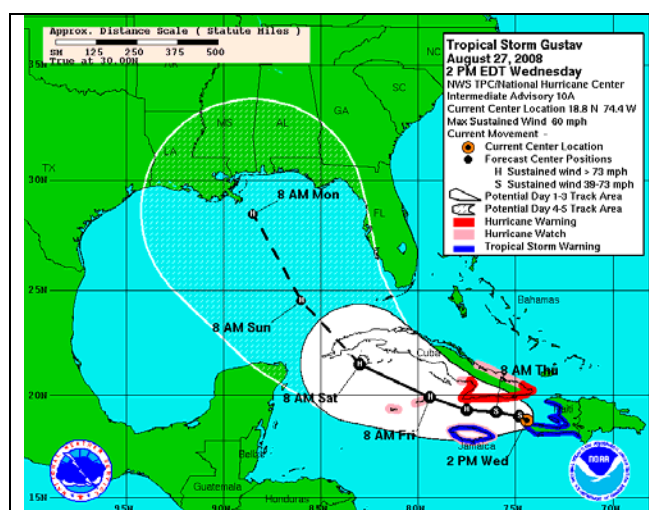




## Under the Big Sky August 29, 2008

**National Preparedness Month:** The month of September is National Preparedness Month. With September typically being a slow month weather-wise in Montana (except for that wind!), it's a great transition month for us to take some time to take stock of our own resources and preparedness. <http://www.ready.gov/america/npm08/intro.html>



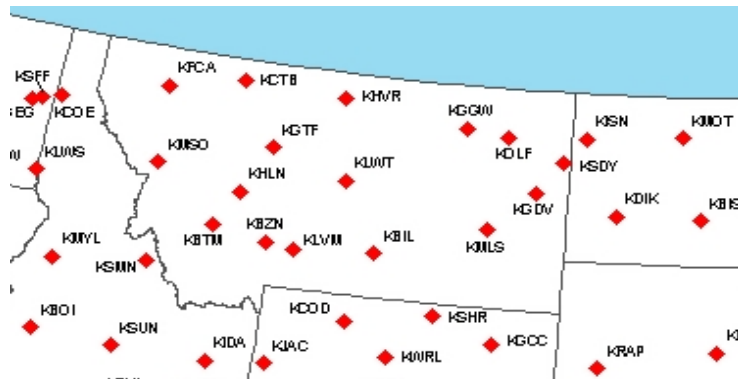
Graphic shows the potential track of TS Gustav in the cone of uncertainty through next Monday morning. For more information go to: <http://www.nhc.noaa.gov/>

**Recent Tropical Systems:** Tropical Storm Fay had a record breaking 4 landfalls on the state of Florida, and has caused significant flooding, and tornadoes throughout the southeast United States. This morning there is still a tornado watch in effect in the Carolina's in the remnants of Fay. Also, **Tropical Storm (TS) Gustav** spun up earlier this week and has killed 17 people in the Caribbean due to the flooding. It was a Hurricane, but has decreased in intensity, but it's expected to reach hurricane strength again by this weekend. The current forecast has it potentially affecting the Gulf Coast region again, from west to east of New Orleans.

**NOAA Economic Report:** The total annual Federal spending for weather information is about **\$25 per household**, which includes funding for aviation and defense, in addition to NOAA. However, the median household value for this weather information is **\$109 per year**, which produces an **annual benefit-cost ratio of (4.4 to 1.0)** for U.S. households alone, or net national benefits of **\$8.8 billion/year**. This assessment does not include the additional benefits to the industries of agriculture, transportation, and construction, which often utilize NOAA's environmental data and products for research, operational, or business decision making. For more economic information, visit: <http://www.economics.noaa.gov/>

**Sunrise/Sunset Tables:** With hunting season knocking on the door, I thought I would share the best site to get Sunrise/Sunset information. The US Naval Observatory publishes all this information which we use in the NWS. You can get information on the times, as well as moonrise, moonsets, and lots of other astronomical data at: <http://aa.usno.navy.mil/>

**Aviation forecasting program:** The NWS has a fairly extensive aviation forecasting program. The NWS Glasgow office has 4 airports for which we issue weather forecasts. The forecasts are issued every 6 hours, and cover a 24 hour period. We also update them as needed, based on the observed conditions at the airport. The Glasgow NWS office issues forecasts for Glasgow, Wolf Point, Sidney and Glendive. The graphic below shows the forecast locations across the region.



<p>KSDY 211129Z 211212 VRB06KT P6SM SCT120  FM2000 25008KT P6SM SCT060CB BKN120  FM0200 30013KT P6SM -SHRA OVC050CB  FM0900 29020KT P6SM BKN100  AMD LTD TO CLD VIS AND WIND=</p>	<p><b>KSDY-Airport Identifier for the Sidney, MT Airport</b>  <b>211129z</b> – Date and Greenwich Mean Time the forecast was issued  <b>211212</b>-Date and time the forecast is valid, 21<sup>st</sup> from 1200 GMT to 12 GMT the next day  <b>VRB06KT P6SM SCT120</b> – Variable winds, Visibility greater than 6 statute miles and a scattered cloud layer at 12,000 feet  <b>FM2000 25008KT P6SM SCT060CB BKN120</b>- Beginning at 2000 GMT, the winds will be from the WSW (250 degrees) at 8 kts (about 9 mph) a scattered cloud layer at 6000 feet with possible thunderstorm clouds in the area and a broken cloud layer at 12000 feet.  <b>FM0200 30013KT P6SM -SHRA OVC050CB</b> – Beginning at 0200 GMT the winds will be from the west (300 degrees) at 13 knots (15 mph), the visibility will be greater than 6 miles with light rain showers in the area, and the clouds will be overcast at 5000 feet with some being thunderclouds.  <b>FM0900 29020KT P6SM BKN100</b> – Beginning at 0900 GMT, the winds will be west (290 degrees) at 20 knots (23 mph), visibility will be greater than 6 miles and the cloud layer will be broken at 10000 feet.  <b>AMD LTD TO CLD VIS AND WIND</b> – This means that the automated weather station at Sidney only reports clouds, visibility and winds, not weather. So, we technically don't have to amend the forecast is the weather changes. But, satellite, radar and spotters help us knowing what is occurring, so we may go ahead and amend it anyway to provide the best quality forecast we can.</p>
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**Slow Motion Lightning photography:** A friend of mine from Rapid City has been doing some research on lightning. Many of the slow motion videos he has created are now on YouTube. I'm often asked whether lightning originates from the cloud down, or the ground up, and the answer is both. He has videos showing both types, and seeing those lightning leaders in slow motion is pretty incredible. Check them out at:

You can see some of the videos at: <http://www.youtube.com/user/ztresearch>

And read more about his research at: <http://www.ztresearch.com/>

**Other interesting videos during the last two weeks:**

-Just in this morning!! Flooding in Phoenix sweeps a car off the road just this morning, caught by a TV helicopter:

<http://www.abc15.com/mediacenter/local.aspx?videoid=15487@knxv.dayport.com>

-Flooding video showing a bridge being destroyed, it's pretty cool to see the bridge eroding away with the waters: <http://www.wmtw.com/video/17144859/index.html>

-Tornado in Poland, it's a rare occurrence, and it sure got the folks there excited:

<http://it.youtube.com/watch?v=U4lkCGq9ZfY>

**Recent Record Highs in NE Montana:** The past two Tuesdays have both been above 100 degrees for much of NE Montana. **August 19<sup>th</sup>** actually had record high temps at the following sites:

Glasgow new record: 103 degrees. Old record 101 in 1931

Flatwillow 4 ENE new record: 104 degrees. Old record 100 in 1942

Scobey 4 NW new record: 101 degrees. Old record 98 in 1992

Port of Morgan new record: 99 degrees. Old record 97 degrees in 1992

Opheim 10N new record: 97 degrees. Old record 95 in 1964

High Temperatures (non record breaking surprisingly!) reported on **August 26<sup>th</sup>**:

Glasgow: 103

Jordan: 103

Wolf Point: 102

Sidney Airport: 100

Glendive Airport: 99

Flatwillow 4 ENE: 105

Malta: 102

Plentywood Airport: 97

Circle: 99

The cold front that came through yesterday definitely announced itself loudly with winds of 25 to 35 mph and gusts to near 50 mph at times in the late afternoon. Temperatures were about 25 degrees colder throughout the region. I'm betting those with arthritis could feel this drastic difference coming on in their joints a day before!

**More changes to NWS Glasgow staffing:** We hired a new general forecaster who will be arriving at the end of September. This was an extra position given to us, so that we now have five general forecasters, as most NWS offices have. Grant Hicks is an Oklahoma native

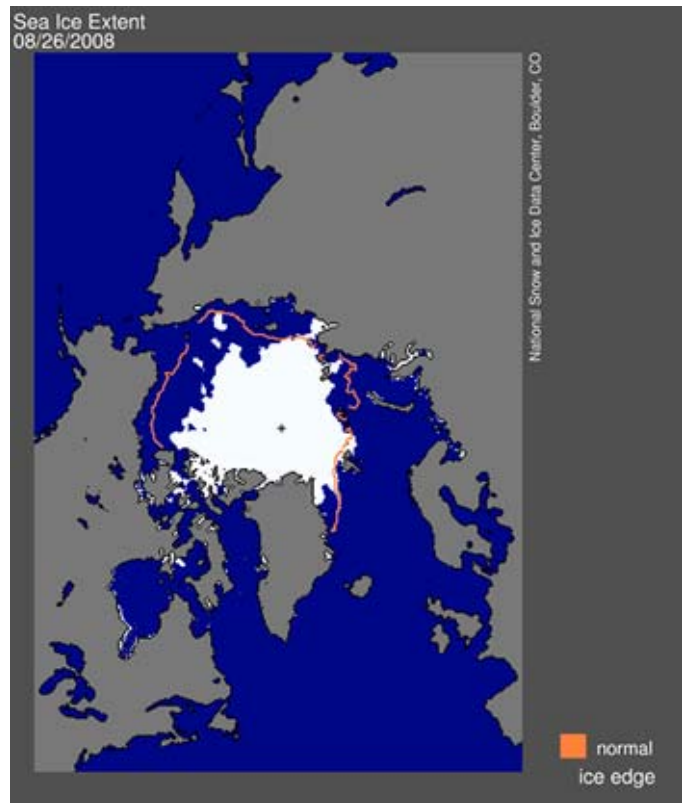
who attended the University of Oklahoma, and has been working in the private meteorological sector.

Also, we just found out that one of our Hydro-Meteorological Technicians (HMT's), Jim Branda, is leaving us for Memphis, TN. He'll be the second staff member to go to that office in the last 18 months now. Jim is nearly done with obtaining a meteorology degree, and has previous Air Force Weather experience as well. He's the one on the phone saying "Thank you ma'am," or "Thank you Sir," when you call, and we know he's spoken with nearly all of our weather spotters and partners at some point since he arrived here in December 2005. It'll get him and his family closer to their relatives, and he's now going to have a much longer active severe weather season than we have here. Congratulations and Good Luck Jim!!

**Arctic Sea Ice at its second lowest extent this year:**

<http://www.cnn.com/2008/TECH/science/08/27/artic.ice.melt.ap/index.html>

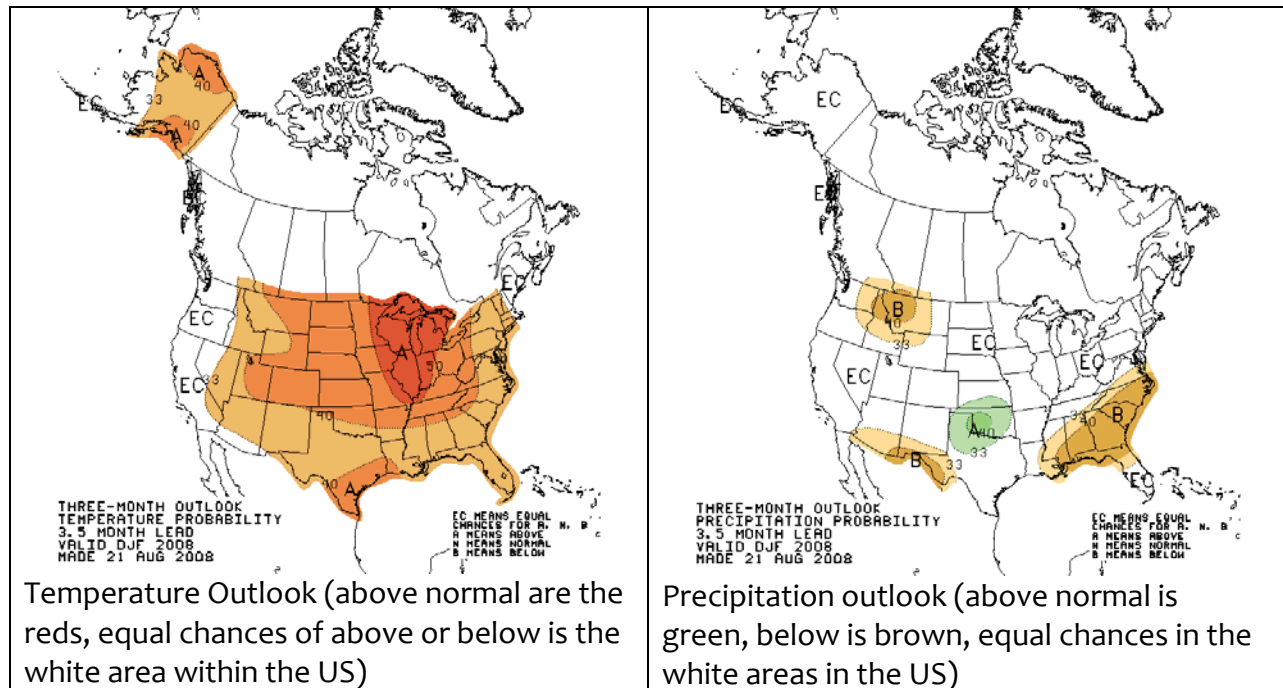
Image to the right from the National Snow and Ice Data Center:  
Daily Arctic sea ice extent for August 26, 2008, fell below the 2005 minimum, which was 5.32 million square kilometers (2.05 million square miles). The orange line shows the 1979 to 2000 average extent for that day. The black cross indicates the geographic North Pole.



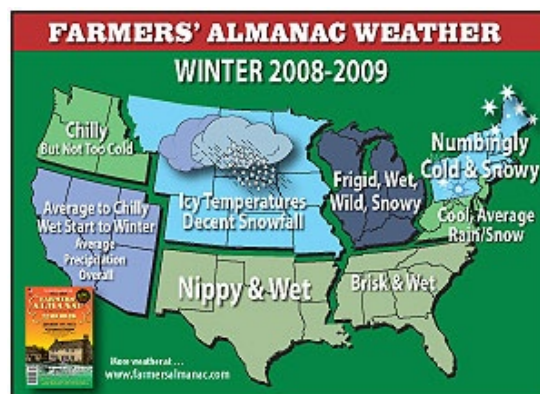
**Winter Outlook?** After highs in the triple digits, it's hard to think about winter, but the old man is just around the corner. There is some conflict in the outlook this winter (Dec-Feb). The Farmer's Almanac has released their forecast for 2009, and they are forecasting below normal temperatures for 2/3 of the country, which is a bit different than what NOAA's Climate Prediction Center(CPC) is forecasting (see graphics below). To read about the Farmer's Almanac outlook, go to: <http://www.farmersalmanac.com/weather/a/could-this-winters-weather-add-to-economic-woes>



The Climate Prediction Center forecast has:



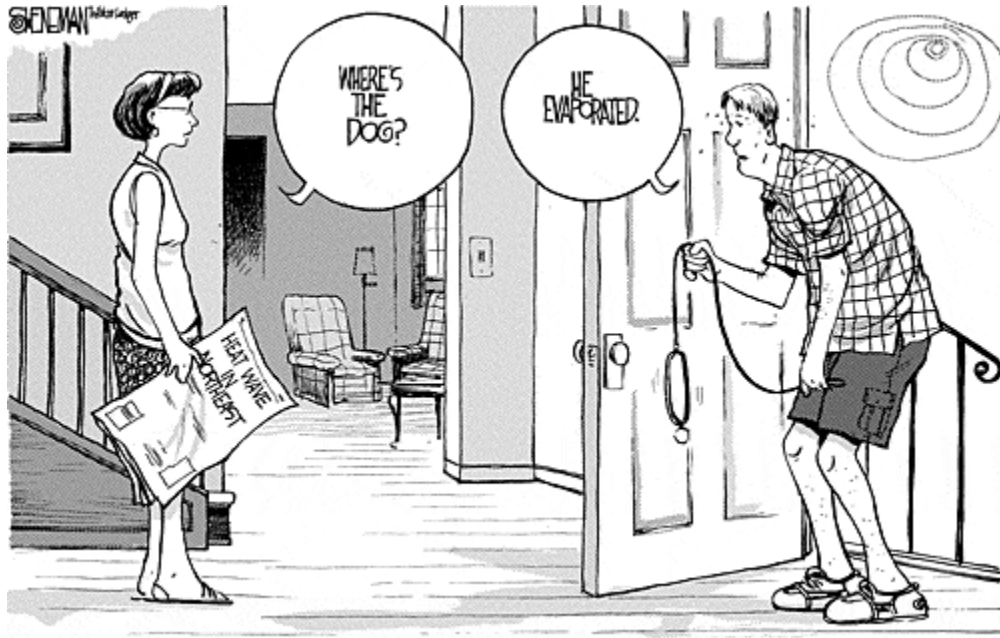
The Farmer's Almanac has:



Why the discrepancy? I'm honestly not sure. The Farmer's Almanac looks at variables that haven't been scientifically published. We know they look at the oceanic temperatures, but it includes things like moon phases as well. The CPC looks at many features including the Pacific Ocean equatorial region temperatures. Last winter we were in a La Nina (colder than normal) pattern, but that has neutralized and the temperatures along the equator are in the normal range. They also look at large scale oceanic computer models, and compare it to climatology. They use shorter term waves of weather that occur over the Pacific as well, and they look at soil moistures. You can read the latest discussion on what they looked at to make the forecast by going to:

<http://www.cpc.ncep.noaa.gov/products/predictions/90day/fxus05.html>

I will warn you though, it's a pretty technical discussion, but they do have links to explain the acronyms and terms they use. As one of our forecasters said to me today, "At least someone will get it right."



*Pretend it says Montana at the end of the "Heat Wave in the Northeast" headline.*